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STRENGTHS AND DIFFICULTIES IN CROATIAN PRESCHOOL CHILDREN: VALIDATION OF THE STRENGTHS AND DIFFICULTIES QUESTIONNAIRE

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Abstract: *Results on the Strengths and Difficulties Questionnaire (SDQ) represent psychological adjustment, well-being, and mental health of children and youth. The SDQ contains 25 items, 10 of which reflect strengths, and 15 of which reflect difficulties, in children's behaviour. Based on its content, five different subscales can be generated: emotional symptoms, conduct problems, hyperactivity, peer problems, and prosocial behaviour. The aim of this study was to test the factor structure and reliability of this instrument. Twenty-nine preschool teachers in this study assessed the strengths and difficulties of 416 preschool children of both genders (241 boys and 220 girls), aged between 1.5 and 7.5 years (M = 5.00, SD = 1.17). After obtaining informed consent from preschool teachers, parents, and managers of randomly chosen kindergartens in Primorsko-goranska County in Croatia, preschool teachers rated the children's behaviour on the SDQ. A confirmatory factor analysis using principal component analysis and Oblimin rotation was conducted. The results confirmed the expected five-factor structure of SDQ, which explained 57.35% of total variance. The reliability of the questionnaire for all subscales proved to be moderate to high: emotional symptoms (α = .73), conduct problems (α = .78), hyperactivity (α = .84), peer problems (α = .78), and prosocial behaviour (α = .63). Results show that the SDQ has satisfactory psychometric properties in a population of Croatian preschool children and can be used for measuring well-being and mental health dimensions in these children.*

Keywords: *preschool children, reliability, Strengths and Difficulties Questionnaire, validity, mental health*

INTRODUCTION

The development of different measuring instruments that preschool teachers and associates can apply is of utmost importance for timely observation and detection of possible developmental/learning difficulties and for assessment of the potential of preschool-age children. Timely identification enables effective intervention to ensure the well-being of children, to encourage their competences, and to realise their full potential. The theoretical framework of developmental psychopathology and appropriate methodologies are aimed at strengthening the child's overall developmental pathway (Wenar, 1994).

Children's growth and development is strongly supported by stimulating and diverse environments with high-quality interactions in the context of early and preschool education (NK, 2014). Understanding the child means supporting his or her initiative and interest, and enabling the development of his or her strong and weak sides. Based on the theoretical background of positive psychology, the child is understood to be an individual capable of optimally developing and functioning, regardless of internal constraints, his or her own history or the environment (Rijavec, Miljković & Brdar, 2008). Therefore, one of the important contributions of this research, which aims to develop a measuring instrument that examines the strengths and difficulties of preschool children, is to merge two significant scientific disciplines within psychology: developmental psychopathology and positive psychology. Most current research in the area of understanding the needs of children with special needs has focused on identifying specific needs and defining an individual workplan for children. The focus has been on the difficulties and work with children

who expressed certain difficulties in development, which is the domain of developmental psychopathology. However, a very small number of studies are at the same time directed at the difficulties of children and their intrapersonal strengths, which is a domain of positive psychology. By shifting focus from a child's difficulties to a child's strengths, this research points to a new development paradigm within the so-called positive development of children with certain difficulties that may occur during development. Consequently, by validating the Strength and Difficulties Questionnaire (Goodman, 1997), there is an attempt to contribute to the methodology of research in this area and to improve the quality of early and preschool education, which is also the aim of this study.

Childhood difficulties through the perspective of developmental psychopathology

A contemporary orientation to interpreting psychopathology and its relationship to developmental psychology is to explain and understand psychopathological phenomena in children and youth as *"development gone the wrong way"* (Vulić-Prtorić, 2001, p. 161). Developmental psychopathology is based on empirical and conceptual requirements. The empirical domain refers to the understanding of the occurrence of psychopathology in a child in light of previous manifestations and its course with or without interventions. A conceptual demand is directed towards clarifying what is actually normal and what psychopathological development is. This approach seeks to understand why certain disturbances are manifested in different ways, i.e. why they take different directions (Wenar, 1994). In other words, contemporary psychopathology has developed as a result of responding to three traditionally dominant principles in the understanding of psychopathology, which have not contributed to the quality of its understanding or the development of therapeutic approaches (Sameroff, 2000). The first principle relates to the problem of the perception that the same causes lead to the same disorder; the second relates to the view that the same symptoms that occur at different ages are attributed to the same causes; and the third relates to the view that certain disorders from childhood result in the same disorders in adulthood.

In order to understand the abilities and difficulties of preschool children, it is necessary to observe the correlation between the characteristics of the environment in which the child is present and the factors that shape his or her behaviour and experience (Vulić-Prtorić, 2003). By knowing the pathways of preschool children's development, it is easier to get to know each child as a whole and to shape paths for more effective intervention. Carr (1999) divides risk and protective factors into predisposing (e.g. illness or upbringing), precipitating (e.g. abuse or family crises), perpetuating (bad emotional skills or excessive punishment), and protective (regular physical activity, involvement of both parents), citing thereby the personal and the environmental domain in order to explain the meaning of context in the development of psychopathological processes. The first three groups of factors refer to environmental elements that create, stimulate or contribute to the presence of a particular disorder, while the group of protective factors stops their progression. These environmental elements point to the fact that context plays a great role in the development of personal behaviour and experience, which means that change in environmental factors can significantly influence the direction of development. There are many empirical testimonies in this regard, and largely Masten and colleagues (1990, 2006a,b, 2007, 2010a,b,c, 2011) have confirmed in their studies the strength of protective factors that positively influence the prevention of the emergence of psychopathological directions in development.

Childhood difficulties through the perspective of positive psychology

In contrast to the focus on symptoms and difficulties, positive psychology is a scientific discipline that speaks of the positive factors used by children to develop and function optimally. The emphasis is on understanding the sources, processes, and mechanisms that provide positive outcomes. Speaking of factors supporting the positive development of the child, Benson (2003) proposes the division of so-called developmental assets into *external* and *internal*. Developmental assets, common positive experiences, and qualities are categorised into 20 external and 20 internal assets.

This classification of 40 developmental assets includes: external assets that are defined as positive experiences experienced in interaction with the environment and adults (support, empowerment, boundaries and expectations, constructive use of time), while internal assets imply the characteristics and behaviours of the person (devotion to learning, positive value, social competence, and positive identity). Types of *support* include family benefits, positive family communication, good peer relations, a good neighbourhood, a good school environment, and parental involvement in child education, all of which are perceived as external assets. *Empowerment* is realised in a community that appreciates young people, where young people are perceived as strong, and where a sense of security and of helping others predominate. *Boundaries and expectations* include clear boundaries in the family, school and neighbourhood, the existence of positive adult models, positive peer relationships, and high expectations. *Constructive use of time* involves carrying out creative activities, participating in youth programs and religious communities, and spending time at home. As part of the internal assets, *devotion to learning* is enabled through high motivation for achievement, engagement at school, doing homework, engagement with school, and reading for pleasure. *Positive values* include care, equality and social justice, integrity, honesty and restraint, social competence of planning and decision-making, interpersonal and cultural competences, resistance to pressure, and peaceful conflict resolution. In addition, it is important to emphasise prosocial behaviour that is recognised not only as a protective factor in the development of children, but also as one of the human strengths and virtues of the VIA classification of human strengths and virtues (Peterson & Seligman, 2004). Ultimately, a *positive identity* is visible in the developed personal strength of high self-esteem, through a sense of a meaningful and positive personal future.

Strengths and difficulties among preschool children

The dominant approach to the creation of the *Strength and Difficulties Questionnaire* (SDQ; Goodman, 1997) included the traditionalist diagnostic approaches presented in the DSM-V Classification of Psychopathology in Children (Diagnostic and Static Manual of Mental Disorders; American Psychiatric Association, 2013) and ICD-10 (World Health Organization, 1992). Therefore, the 25 items in the SDQ were selected based on nosological concepts and factor analyses (Goodman & Scott, 1999). The SDQ is a short behavioural screening questionnaire with the purpose of testing five types of behaviours (each behaviour with five items): Conduct problems, Inattention/Hyperactivity, Emotional Symptoms, Peer problems, and Prosocial Behaviour. For example, the subtype Inattention/Hyperactivity consists of two key symptoms of inattention, two key symptoms of hyperactivity, and one key impulse symptom according to the DSM-IV diagnostic criteria of Attention-Deficit/Hyperactivity Disorder (ADHD, APA, 1994) and the ICD-10 diagnostic criteria of hyperkinesis (World Health Organization, 1992). The total difficulty score is generated based on the sum of the first four subscales (conduct problems, hyperactivity, emotional symptoms and peer problems). Based on the fifth subscale (prosocial behaviour), the strength score is generated. This prosocial behaviour subscale is aimed to measure described behaviours in children between 4 and 17 years. Currently there are several versions of the SDQ, which has been translated into 87 languages (http://www.sdqinfo.com/py/sdqinfo/b0.py). Several types of SDQ exist for use with children of different ages and for different types of assessment: for parental assessment of children aged 2-4 years and children aged 4-17 years, for teacher assessments of children aged 4-17 years, and for self-assessment by children aged 11-17 years. In addition to theoretical grounding and reliance on the results of the factor analysis, the SDQ was created to offer a number of other methodological advantages: a) it has a small number of items on one sheet of paper; b) it has the potential to cover a wide range of children from a development perspective (from 4 to 17 years); c) the same versions can be filled out by parents and teachers; d) a similar version is also suitable for self-assessment in older children; e) although numerically uneven, the questionnaire covers children's difficulties and strengths; and f) each examined dimension is covered with an equal number of particles (five subscales with five items).

Over the past 20 years, many studies have focused on SDQ validation and its ability to predict the occurrence of emotional, behavioural, and mental disorders (mental health) in preschool children. As is observable from the number of its translations, this instrument has experienced a remarkably high level of empirical validation throughout the world. Several empirical validation studies have been carried out on normal samples of children (Goodman, Meltzer & Bailey, 1998; Goodman & Scott, 1999; Cury & Golfeto, 2003; Muris, Meesters & van den Berg, 2003; Hawes & Dadds, 2004; Woerner, Fleitlich-Bilyk, Martinussen, Fletcher, Cucchiaro, Dalgalarrondo, Lui & Tannock, 2004; Goodman, Slobodskaya & Knyazev, 2005; Palmieri & Smith, 2007; Elberling, Linneberg, Olsen, Goodman & Skovgaard, 2010; Goodman, Lamping, Ploubidis, 2010; Stone, Otten, Engels, Vermulst & Janssens, 2010; Mieloo, Raat, Oort, Bevaart, Vogel, Donker & Jansen, 2012). Other empirical validations have been carried out on clinical samples (Alyahri & Goodman, 2006; Goodman, Ford, Simmons, Gatward & Meltzer, 2000; Samad, Hollis, Prince & Goodman, 2005; Goodman & Goodman, 2009, 2011, 2012).

Scientific studies have also analysed the relationship between SDQ results and socio-demographic variables (parent education, child's gender), assessment of school readiness, social isolation and emotional development, and the results of some other assessment scales such as the *Child Behaviour Check List* (Achenbach, 2001). All studies involve educators and parents who evaluate children's behaviour. Thus, the results of a Dutch survey (Mieloo, Raat, Oort, Bevaart, Vogel, Donker & Jansen, 2012) on the reliability of the SDQ gender questionnaire suggest that teachers assess a higher level of strengths than difficulties (N = 4516) in children aged 5-6 years. By analysing the total difficulties score, teachers and parents assessed a significantly higher level of difficulties in boys than in girls. A subsequent study (Gao, Shi, Zhai, He & Shi, 2013) showed that the mean values of the strength subscale of children aged 5-7 years are significantly increased in boys, while in girls they are relatively constant. Cury and Golfeto (2003) found in a sample of children aged 6-11 years that boys show significantly higher scores on the subscales of hyperactivity, behavioural problems, and peer problems, while girls score higher on dimensions of emotional problems and prosocial behaviour. These authors argue that compared to boys, girls generally show fewer symptoms of aggression/impulsiveness, fewer behavioural problems, and higher levels of mood swings and anxiety disorders, which are diagnosed at a later age. These findings are consistent with epidemiological findings of significantly greater hyperactivity in boys/young men and significantly higher incidence of various anxiety disorders in girls/young women (Wenar, 1994), which is consistent with gender stereotypes. Whether this reflects real gender differences or merely the attribution of stereotypical behaviour to boys and girls remains unclear and is not the focus of this research.

Some research (White, Connelly, Thompson & Wilson, 2013) examined the opinion of preschool teachers in institutions for early and preschool education on the use of the SDQ. Using the interview method, researchers found four main perspectives on the use of the questionnaire to assess preschool children's readiness for school. The first perspective of the educational staff includes the opinion that the questionnaire is a suitable form of monitoring and gathering data on a child's social and emotional development. The second point they made was that the statements are clear for evaluation of early and preschool aged children. They also believe that they have a professional obligation to collect questionnaire data, and express dissatisfaction with possible results that may indicate a child's difficulty and stigmatise it. Finally, they point out that the assessment of a child's strengths and difficulties is only an additional burden in their overwhelming daily schedule. Therefore, it can be concluded that preschool teachers evaluate the use of the SDQ partly as being positive, since most of them consider that they have not been provided with any new information about a child that they did not already know before, and they expressed fear of stigmatising children.

THE RESEARCH AIM, TASKS AND HYPOTHESIS

It is very important that preschool teachers develop their psychological competencies (Tatalović Vorkapić, Vlah & Vujičić, 2012;

Tatalović Vorkapić & Vujičić, 2013) and methodological competencies. Applying instruments such as SDQ in their work would enable them to objectively and reliably observe children's behaviour, detecting thereby their strengths, which should be nurtured, as well as their possible developmental/learning difficulties, which should be supported additionally through early intervention.

In order to make such an instrument available to preschool teachers in Croatia, the aim of this study was to explore psychometric properties of the SDQ on a Croatian sample of preschool children by exploring its factor structure and reliability. Basic statistical properties are described for each of the SDQ subscales as well.

Taking into account the fact that SDQ has been thoroughly empirically validated during the past 20 years all over the world in a very satisfactory manner, it was expected that the proposed five-factor structure of this scale would be determined also for the Croatian version, with an acceptable level of reliability (not less than .70).

METHOD

Participants

A random sample of $N = 461$ preschool children (220 girls and 241 boys), whose behaviour was assessed by $N = 29$ preschool teachers, was enrolled. The average children's age was $M = 5.00$ ($SD = 1.71$) years in the range from 1.5 to 7.5 years of age. Since children were rated by preschool teachers who knew them, preschool teachers inserted in the questionnaire the children's age and gender. Several towns from Primorsko-goranska County were chosen and the distribution of children by town was as follows: Bakar (N = 35 children), Kraljevica (N = 67 children), Matulji (N = 285 children), and the small locality of Škrljevo (N = 74 children). Due to requests for anonymity and confidentiality, the names of kindergartens are not presented here.

Instrument

In this study, the SDQ (Goodman, 1997) was applied. It is intended to be used for estimates of behavioural and emotional strengths and difficulties of preschool children and adolescents, for clinical and non-clinical purposes. Furthermore, SDQ is used to evaluate behavioural follow-ups of a child's behaviour before and after specific interventions because it is sensitive to the effects of treatment. It serves to detect and monitor children with various disabilities and strengths in the educational context. The SDQ has proven to be very useful in epidemiological studies of populations with a wide range of different characteristics (ethnic, family types, socio-economic deprivation). In addition, it is used to check the occurrence of certain psychiatric disorders due to the high definition and moderate sensitivity of its dimensions. As a result, the SDQ has found significant use in studies around the world, specifically in developmental, genetic, sociological, clinical, and educational research.

The questionnaire contains 25 items that are divided into five subscales: prosocial behaviour, hyperactivity/inattention, emotional problems, behavioural problems, and peer problems. Each subscale contains five items (Table 1). Higher scores on the subscales of hyperactivity, emotional problems, behavioural problems, and peer problems indicate a higher level of difficulty, while a higher score on the subscale of prosocial behaviour indicates a higher level of positive behaviour. In this research, the R 4-16 version of the SDQ questionnaire, which was translated into Croatian by Helena Hamilton and Nataša Momčilović, was used (Goodman, 2005, according to http://www.sdqinfo.com/py/sdqinfo/b3.py?language=Croatian). The task of the preschool teacher was to evaluate the behaviour of children in the last six months on a 3-point Likert scale (*1 = Not true, 2 = Somewhat true, 3 = Certainly true*).

Procedure

After obtaining permission from kindergarten management to conduct research in selected kindergartens in the Primorsko-goranska County, contact was made with preschool teachers. Since this research was done as part of a graduate thesis, a formal letter of cooperation was sent from the Faculty of Teacher Education to kindergarten management based on their availability to participate in the research. All kindergartens that received the formal letter agreed to participate in the study. Preschool teachers who agreed to participate in

the study approached parents and obtained verbal consent from them. Preschool teachers were asked to follow the abovementioned basic guidelines on the assessment of children's behaviour during the last six months in the group in which they work, and it was emphasised to teachers that they should observe which child behaviours occur in certain situations and that they should provide objective answers. After handing in the questionnaires, teachers were told that they and the parents of the children in the study could learn about the results of the research at the annual conference of graduate projects held by the Faculty of Teacher Education. It was suggested that preschool teachers spend one day assessing the behaviour of half the children in the group, and the second day assessing the behaviour of the other half. Questionnaires were left with preschool teachers for one week, after which they were collected. All children were anonymised using codes during data analysis and presentation.

Statistical analysis

The statistical program SPSS 20 was used in the data analysis, which consisted of two factor analyses - principal component analysis with Oblimin rotation (exploratory and confirmatory), and reliability analyses to generate Cronbach alpha's for each SDQ subscale. Criteria for acceptable factor analyses were based on the Scree plot and content analysis of subscale item structure. The criterion for acceptable reliability was .70, according to the classification of George and Mallery (2003). Items with missing data were not included in the analyses. Scores were computed according to Goodman's (1997) instructions separately for each subscale.

RESULTS

With the aim of testing the factor structure of the applied SDQ, two factor analyses were run. The exploratory factor analysis resulted in six extracted factors, which explained 61.824% of the total variance. The resulting Scree plot can be observed in Figure 1.

With the aim of testing the original SDQ structure, a confirmatory factor analysis was run on the

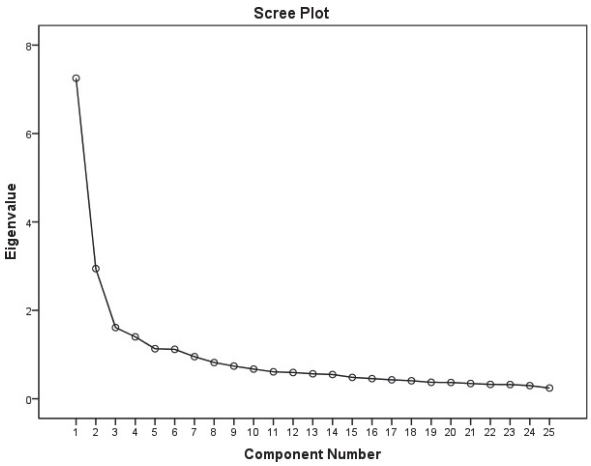

Figure 1. *Scree plot of eigenvalues and component numbers of SDQ items*

principal components and Oblimin rotation using Kaiser normalisation, with five criteria factors to be extracted. As it can be seen in Table 1, five extracted factors explain 57.354% of the total variance.

The first factor, which consists of five items from the *Conduct problems* subscale, explains 29.01% of the variance. The second factor, which presents the *Emotional problems* subscale, explains 11.78% of the variance. The third factor, which reflects the *Hyperactivity* subscale, explains 6.44% of the variance. The fourth factor, which could be recognised in the *Prosocial behaviour* subscale, explains 5.60% of the variance. Finally, the fifth factor, which consists of the *Peer problems* subscale, explains 4.52% of the variance. Even though the items from the Prosocial behaviour factor show loadings on other factors as well, the results confirm the hypothesised factor structure of the SDQ.

The reliability analysis revealed the following Cronbach alpha coefficients: for the *Conduct problems* subscale $\alpha_{(CP)} = 0.781$; for the *Emotional problems* subscale $\alpha_{(EP)} = 0.734$; for the *Hyperactivity* subscale $\alpha_{(HYP)} = 0.839$; for the *Prosocial behaviour* subscale $\alpha_{(PRB)} = 0.822$; and for the *Peer problems* subscale $\alpha_{(PP)} = 0.634$. The reliability levels and basic descriptive parameters for each SDQ subscale, together with their inter-correlations, can be seen in Table 2. Regarding the determined descriptive parameters, the lowest scores were estimated for

Table 1. *The final pattern matrix from principal component analysis with Oblimin rotation, communalities and descriptives (means and standard deviations).*

SDQ item	M	SD	Communality	Principal Component*				
				1	2	3	4	5
sdq18_ Often lies or cheats	1.50	.70	.600	.823				
sdq22_ Steals from home, school or elsewhere	1.57	.74	.643	.785				
sdq12_Often fights with other children or bullies them	1.29	.58	.561	.560				
sdq7_ Generally obedient, usually does what adults request	1.46	.64	.620	.552				
sdq5_ Often has temper tantrums or hot temper	1.29	.60	.568	.398			.360	.318
sdq24_ Many fears, easily scared	1.28	.56	.576		.731			
sdq3_ Often complains of headaches, stomachaches or sickness	1.17	.43	.530		.666		.360	
sdq8_ Many worries, often seems worried	1.19	.45	.579		.652			
sdq13_Often unhappy, downhearted or tearful	1.23	.52	.595		.620			
sdq16_ Nervous or clingy in new situations, easily loses confidence	1.36	.63	.543		.615			
sdq15_ Easily distracted, concentration wanders	1.65	.74	.711			.859		
sdq25_ Sees tasks through to the end, good attention span	1.66	.69	.634			.797		
sdq21_ Thinks things out before acting	1.78	.72	.595			.687		
sdq2_ Restless. Overactive, cannot stay still for long	1.65	.75	.643			.683		
sdq10_ Constantly fidgeting or squirming	1.65	.75	.608			.649		
sdq9_ Helpful if someone is hurt, upset or feeling ill	2.53	.68	.600				.555	
sdq20_ Often volunteers to help others (parents, teachers, other children)	2.41	.68	.593			-.464	.482	
sdq17_ Kind to younger children	2.67	.53	.539	-.396			.477	
sdq4_ Shares readily with other children (treats, toys, pencils, etc.)	2.52	.65	.623	-.443			.410	
sdq1_ Considerate of other people's feelings	2.49	.64	.613	-.441			.343	
sdq11_ Has at least one good friend	1.18	.49	.609					.722
sdq14_ Generally liked by other children	1.23	.45	.515					.633
sdq6_ Rather solitary, tends to play alone	1.26	.55	.569					.558
sdq19_ Picked on or bullied by other children	1.10	.37	.454				.407	.537
sdq23_ Gets on better with adults than with other children	1.33	.54	.218					.451
Initial Eigenvalues				**7.25**	**2.94**	**1.61**	**1.40**	**1.11**
% of Variance				**29.01%**	**11.78%**	**6.44%**	**5.60%**	**4.52%**

* 1-Conduct Problems; 2-Emotional Problems; 3-Hyperactivity; 4-Prosocial Behaviour; 5-Peer Problems

Table 2. *Descriptive parameters of SDQ subscales and their inter-correlations*

SDQ subscale	Average estimation		Cronbach alpha	SDQ subscale inter-correlation			
	M	SD		2	3	4	5
1.Conduct Problems	1.42	.48	.78	**.302****	**.511****	**-.518****	**.302****
2.Emotional Problems	1.24	.36	.73	1.00	**.193****	**-.406****	**.433****
3.Hyperactivity	1.68	.57	.84		1.00	**-.510****	**.266****
4.Prosocial Behaviour	2.52	.48	.63			1.00	**-.436****
5.Peer Problems	1.22	.31	.78				1.00

*$p<0.05$; **$p<0.01$

peer problems and emotional problems among pre-school children in this study. The highest score was estimated for prosocial behaviour. Finally, analysis of possible inter-correlations among SDQ subscales showed high and significantly positive correlations among all four subscales of difficulties. All four subscales showed high and significantly negative correlation with the prosocial behaviour subscale.

DISCUSSION

Overall, the results of this research have demonstrated that the SDQ has satisfactory psychometric properties regarding its factorial structure and internal consistency reliability in a Croatian sample of preschool children. First, the five-factor structure of the original SDQ has been confirmed in this study. The expected percentage of the total variance has been explained in this study as well (Muris, Meesters & van der Berg, 2003; Mieloo et al., 2012; Stone et al., 2010). However, seven items showed secondary loadings, and most of them reflected the *Prosocial behaviour* subscale. This finding is not new, so it may not be related to the specificity of this particular research. Even though a significant number of studies clearly confirmed a five-factor structure of the SDQ with minimal cross-loadings observed among subscales (Becker, Woerner, Hasselhorn, Banaschewski, & Rothenberger, 2004; Goodman, 2001; Hawes & Dadds, 2004; Koskelainen et al., 2001; Muris et al., 2003), some of them showed a rather different factor structure, such as a three- or four-factor structure (Koskelainen et al., 2001; Muris et al., 2004; Woerner, Becker & Rothenberger, 2004). In light of these various structural validity results, Palmieri and Smith (2007) suggested that the *Prosocial* factor is not a meaningful component of the SDQ but may be better interpreted as a methodological artifact. Goodman (2001) was aware of the possibility that evaluators could vary in their readiness to attribute positive features within the *Prosocial behaviour* subscale, so he included positively oriented items in other subscales. Dickey and Blumberg (2004) emphasised that *"because answers to 8 of the 10 positively worded items were most strongly associated with this factor, the likelihood that this factor represents a methodological artifact is increasingly strong"* (p. 1165).

Therefore, Palmieri and Smith (2007) tested three models in their study: a) Model 1: higher-order solution of five-factor structure with a *Difficulties* factor and *Prosocial* factor; b) Model 2: lower-order solution of five-factor structure with the previously named SDQ factors; and c) Model 3: six-factor structure that consists of the five previously named SDQ factors and one named *Positive Wording Method* factor, which consists of positively oriented items on the SDQ. They determined that the third model is the best CFA model, and that *"the impact of any response bias arising from this factor is negligible with respect to the four SDQ symptom sub-scales and is limited chiefly to the Prosocial subscale"* (Palmieri & Smith, 2007, p. 9). Those authors also stated that one should be careful regarding this finding, and further research about this methodological issue should definitely be conducted in the near future. Therefore, the factor structure determined in this study on a sample of Croatian preschool children confirms not only the perspective of the proposed five-factor structure, but also the perspective of possible methodological issues.

Furthermore, internal consistency reliability analysis of basic descriptive data and subscale inter-correlations in this study confirmed findings from prior research (Stone, Otten, Engels, Vermulst & Janssens, 2010). More recent study of Doi, Ishihara and Uchiyama (2014) demonstrated the following reliability levels: for prosocial behaviour $\alpha_{(PRB)} = 0.70$, for hyperactivity $\alpha_{(HYP)} = 0.66$, for emotional problems $\alpha_{(EP)} = 0.61$, for conduct problems $\alpha_{(CP)} = 0.62$ and for peer problems $\alpha_{(PP)} = 0.45$. In addition, a recent longitudinal study by Croft, Stride, Maughan, and Rowe (2015) outlines the reliability measures of the SDQ for children aged 3, 5, and 7. The average values of Cronbach alphas are: for prosocial behaviour $\alpha_{(PRB)} = 0.80$, for hyperactivity $\alpha_{(HYP)} = 0.83$, for emotional problems $\alpha_{(EP)} = 0.77$, for behavioural problems $\alpha_{(CP)} = 0.80$, and for peer problems $\alpha_{(PP)} = 0.70$.

So, even though there is room for improvement regarding the Cronbach alpha reliability levels and regarding the questionable secondary factor loadings, especially for the first and fourth items of the *Prosocial behaviour* subscale, the SDQ can be used for measuring well-being and mental health dimensions among preschool children in Croatia.

CONCLUSION

Given that this is the first study in Croatia that focuses on verifying the factor structure and reliability of the SDQ on a sample of preschool children, it is extremely important to continue with similar research.

It is also important to consider some limitations of this research. First, the evaluations were carried out only by preschool teachers, which is inadequate since the detailed assessment of the factor structure should also take into account parents' assessments. Secondly, although the survey was conducted on a sample of randomly selected preschools, it included only the Primorsko-goranska County, and future studies should include a larger sample that equally represents all counties of Croatia. Thirdly, only children enrolled in preschool were covered. Fourthly, keeping in mind the potential methodological problem associated with the positively oriented subscale of Prosocial Behaviour, which was recognised and identified in previous research, it is crucial to conduct research on patterns that emerge from an SDQ with or without the subscale of Prosocial Behaviour, which would give a true answer to the question related to possible response bias.

Despite the abovementioned restrictions, this research undoubtedly makes a scientific contribution to several different research areas. From the methodological perspective, the expected five-factor structure of SDQ was confirmed on an adequate sample of preschool children. This enables further research using this measuring instrument with the aim of not only improving the instrument but also of applying it in educational and clinical practice. For preschool teachers and professional associates this instrument provides a quick, easy, objective, systematic insight into the difficulties and strengths of preschool children. Considering the potential of this instrument for rapid screening of children with difficulties that pose a significant threat to their mental health and that may trigger developmental psychopathology, its constructive and discriminative validity should be examined in specific clinical samples. This opens up the possibility of its application within the framework of preventive and early intervention activities in working with preschool children. Also, given that this measuring instrument is intended for self-assessment of older children and adolescents, its validity and reliability should be examined on relevant samples.

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SNAGE I POTEŠKOĆE PREDŠKOLSKE DJECE U HRVATSKOJ: VALIDACIJA UPITNIKA SNAGA I POTEŠKOĆA

Sažetak: *Rezultati utvrđeni primjenom Upitnika snaga i poteškoća (USIP) ukazuju na razinu psihološke prilagodbe, dobrobiti i mentalnog zdravlja djece i mladih. USIP se sastoji od 25 čestica, od kojih 10 čestica odražava snage, a 15 čestica poteškoće u dječjem ponašanju. Obzirom na sadržaj ovog upitnika, moguće je prepoznati strukturu od pet subskala; emocionalni simptomi, poblemi u ponašanju, hipeaktivnost, problemi s vršnjacima i prosocijalno ponašanje. Osnovni cilj ovog istraživanja je ispitati faktorsku strukturu i pouzdanost ovog mjernog instrumenta. Stoga je dvadeset i devet odgajatelja procjenjivalo snage i poteškoće 416 predškolske djece u dobi od 1,5 i 7,5 godina (M = 5,00, SD = 1,17), oba spola (241 dječaka i 220 djevojčica). Nakon dobivenog informiranog pristanka za sudjelovanjem u istraživanju od ravnatelja vrtića, odgajatelja i roditelja slučajno odabranih vrtića u Primorsko-goranskoj županiji, odgajatelji su procijenili ponašanje djece na USIP. Provedena je konfirmatorna faktorska analiza metodom Osnovnih komponenata s Oblimin rotacijom. Rezultati su potvrdili očekivanu petofaktorsku strukturu ovog upitnika, objašnjavajući 57,35% ukupne varijance. Utvrđena je umjerena do visoka pouzdanost svih subskala: emocionalni simptomi (α = ,73), problem u ponašanju (α = ,78), hiperaktivnost (α = ,84), problem s vršnjacima (α = ,78) i prosocijalno ponašanje (α = ,63). Nalazi istraživanju ukazuju na to da USIP ima zadovoljavajuće metrijske karaktristike za populaciju predškolske djece, te se može primjenjivati za mjerenje dobrobiti i mentalnog zdravlja djece u našoj zemlji.*

Ključne riječi: *predškolska djeca, pouzdanost, Upitnik snaga i poteškoća, valjanost, mentalno zdravlje*